PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : **A61B 5/00, G01N 21/35**	**A1**	**(11) International Publication Number:** **WO 93/00856** **(43) International Publication Date:** 21 January 1993 (21.01.93)

(21) International Application Number: PCT/US92/00784

(22) International Filing Date: 29 January 1992 (29.01.92)

(30) Priority data:
725,502 3 July 1991 (03.07.91) US

(71) Applicant: VIVASCAN CORPORATION [US/US]; 22 High Street, Southboro, MA 01772 (US).

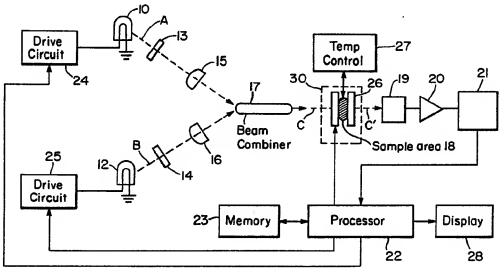
(72) Inventors: HARJUNMAA, Hannu ; 14 Damon Road, Holden, MA 01520 (US). MENDELSON, Yitzhak ; 31 Whisper Drive, Worcester, MA 01609 (US). WANG, Yi ; 11 Sever Street, Apt. 802, Worcester, MA 01609 (US).

(74) Agents: REYNOLDS, Leo, R. et al.; Hamilton, Brook, Smith & Reynolds, Two Militia Drive, Lexington, MA 02173 (US).

(81) Designated States: AT, AU, BB, BG, BR, CA, CH, CS, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MW, NL, NO, PL, RO, RU, SD, SE, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG).

Published
With international search report.

(54) Title: A NON-INVASIVE METHOD AND APPARATUS FOR MEASURING CONCENTRATION OF ANALYTES IN LIVING TISSUE



(57) Abstract

To determine glucose or other constituents of the human or animal body, near-infrared radiation containing two alternating wavelengths that have equal extinction coefficients in the tissue is directed onto a sample area of the body. The intensity relation of the two different wavelengths is adjusted so as to balance the two wavelength detected signals. The extracellular-to-intracellular fluid ratio of the tissue is changed or is allowed to change, and the alternating component of the transmitted beam power is measured. The amplitude of the alternating-current (AC) signal given by the detector represents glucose concentration or the difference from a preset reference concentration.